

Chairman Mica, Ranking member Connolly, and distinguished members of the subcommittee, it is a privilege and honor to offer my expertise in your quest to understand more comprehensively the impact of marijuana on the individual as well as society. Currently, I am a tenured Associate Professor of Psychology at Columbia University in both the Departments of Psychology and Psychiatry. I also serve as a research scientist in the Division on Substance Abuse at the New York State Psychiatric Institute. I am a member of the National Advisory Council on Drug Abuse and am on the board of directors for the College on Problems of Drug Dependence and for the Drug Policy Alliance.

As you know, I am trained as a neuropsychopharmacologist who has spent the past 16 years studying the neurophysiological, psychological and behavioral effects of marijuana. As part of my research, I have given thousands of doses of marijuana to people and have carefully studied their immediate and delayed responses. My findings are published in some of the most prestigious scientific journals. I have also co-authored a college-level textbook focused on Drugs and society. My most recent book, *High Price*, is aimed at educating the general public about drugs and preventing drug-related tragedies.

I would like to point out that my remarks today will focus primarily on the effects of marijuana on adults since most agree that marijuana use – as well as other drug use - by children should be discouraged.

To be clear, marijuana is a psychoactive drug. That is, it alters the functioning of brain cells and influences our thinking, mood, and behavior. It can have both negative and positive effects. This is true of all psychoactive drugs, including nicotine and alcohol.

A major potential negative consequence of marijuana use is addiction. About 9 percent of all marijuana users will become addicted to the drug. By comparison, about 15 percent of alcohol users and 33 percent of tobacco smokers will become addicted. The point is: yes, marijuana is potentially addictive, but its addictive potential is lower than our current legal drugs alcohol and tobacco.

Another concern related to marijuana use is disruption of cognitive functioning. As is the case with alcohol, during marijuana intoxication some cognitive operations, such as response time, may be temporarily slowed, but the intoxicated individual is able to respond to environmental stimuli in an appropriate manner. Marijuana intoxication typically lasts no more than 2-4 hours, depending upon the individual's level of experience with the drug. It is important to understand that even during the period of intoxication, the user is able to carry out her/his usual behavioral repertoire, e.g., engage in appropriate social behaviors, including responding to emergencies.

After the intoxicating effects of marijuana have dissipated, there are no detectable physiological or behavioral effects of the drug in recreational and causal users. This is similar to what is observed following alcohol intoxication. In fact, many of the individuals who have served as research participants in my studies on marijuana (during which they were administered the drug) are responsible members of their communities.

They are graduate students, actors, schoolteachers, waiters/waitresses, professors, and lawyers, among other professionals.

One of the least discussed effects of our current approach to marijuana deals with arrest rates. Each year, there are more than 700,000 marijuana arrests, which account for half of all drug arrests. By the way, the overwhelming majority of these arrests are for simple drug possession. But what's worse is that – at state level - black people are two to over seven times more likely to be arrested for marijuana than their white counterparts. And at the federal, Hispanics represent 2/3 of the individuals arrested for marijuana violations, despite the fact that blacks, Hispanics, and whites all use marijuana at similar rates.

The scientific community has virtually ignored this shameful marijuana-related effect. The National Institute on Drug Abuse could help remedy this situation by requesting research applications that focus explicitly on race—for example, trying to understand the long-term consequences of marijuana arrests on black and Hispanic people, especially as they relate to disrupting one's life trajectory.

So, as we forward to develop a more rational approach to marijuana in our society, it is my hope that we not only discuss potential negative effects of the drug, but that we also include potential benefits and the unintended consequences of our current policies on certain communities of color.

Date Prepared: 01/24/13

Personal Data

Name: Carl L. Hart
 Birthdate: 10/30/66
 Birthplace: Miami, Florida
 Citizenship: USA

Academic Training

B.S. 1991: University of Maryland (Psychology)
 M.S. 1994: University of Wyoming (Psychology/Neuroscience)
 Ph.D. 1996: University of Wyoming (Psychology/Neuroscience)
 Thesis Title: Role of the L-type calcium channel in nicotine-induced locomotion in rats
 Sponsor: Charles Ksir
 Citation: Hart C, Kisro NA, Robinson SL, Ksir C (1996) Effects of the calcium channel blocker nimodipine on nicotine-induced locomotion in rats. *Psychopharmacology* 128, 359-361.

Traineeship

1994-1995: Predoctoral Fellowship in Neurological Sciences, Clinical Neuroscience Branch, National Institutes of Health / National Institute of Neurological Disorders and Stroke
 1996-1997: Postdoctoral Fellowship in Substance Abuse, Department of Psychiatry, University of California at San Francisco
 1997-1998: Postdoctoral Fellowship in Substance Abuse, Department of Psychiatry, Yale University
 1998-1999: Postdoctoral Fellowship in Substance Abuse, Department of Psychiatry, Columbia University

Military Service

1984-1988: United States Air Force

Academic Appointments

1999-2006: Assistant Professor of Clinical Neuroscience, Department of Psychiatry, Columbia University
 2003-2006: Adjunct Assistant Professor of Psychology, Department of Psychology, Columbia University
 1999-present: Research Scientist III-V, Division on Substance Abuse, New York State Psychiatric Institute
 2004-2010: Affiliated Faculty, The Institute for Research in African-American Studies, Columbia University
 2006-present: Associate Professor (in Psychiatry), Departments of Psychology and Psychiatry, Columbia University
(Tenure Granted: 2009)
 2006-present: Director of Undergraduate Studies, Departments of Psychology and Psychiatry, Columbia University
 2010-present: Research Fellow, The Institute for Research in African-American Studies, Columbia University
 2013-2014: Interim Co-Director, The Institute for Research in African-American Studies, Columbia University

Honors

2007: Fellow, American Psychological Association (Division 28, Psychopharmacology and Substance Abuse)
 2008: Presidential Teaching Award (Columbia University)

Grant Support

Current Funding

2009-2014: Co-Investigator, National Institute on Drug Abuse Grant Award, "Learning to avoid pain: Computational mechanisms and application to methamphetamine," Direct Funds: \$1,125,000

Past Funding

2007-2012: Senior Faculty, National Institute on Drug Abuse Grant Award (5T32 DA007294), "Research Fellowship in Substance Abuse Disorders," Direct Funds: \$1,106,140
 2004-2010: Principal Investigator, National Institute on Drug Abuse Grant Award (5R01 DA03476), "Drug Effects on Behavior: Workplace Implications," Direct Funds: \$2,190,747 (no-cost extension)
 2005-2010: Principal Investigator, National Institute on Drug Abuse Grant Award (1R01 DA019559), "Intranasal Methamphetamine: A Pharmacotherapy Model," Direct Funds: \$1,942,000

- 2010-2011: Principal Investigator, Open Society Institute Grant Award, “The Global amphetamine-type stimulants problem: What is known and what is needed,” Direct Funds: \$100,882
- 2006-2011: Co-Investigator, National Institute on Drug Abuse Grant Award (5R01DA022541), “The Neural Bases of Affect Regulation in Drug Abuse,” Direct Funds: \$1,125,000
- 1993-1995: Principal Investigator, National Institute of Mental Health/Society for Neuroscience Predoctoral Fellowship
- 1999-2000: Principal Investigator, Division on Substance Abuse, Columbia University Pilot Grant Award, “Memantine Effects on Methamphetamine Discrimination in Humans,” Direct Funds: \$5,000
- 1999-2005: Co-Investigator, National Institute on Alcohol Abuse and Alcoholism Grant Award (5R01 AA012599), “Medications Development for Alcohol Abuse: NMDA Agents,” Direct Funds: \$1,860,000
- 2000-2005: Co-Investigator, National Institute on Drug Abuse Grant Award (5R01 DA012698), “THC and Marijuana: Effects in Individuals with HIV/AIDS,” Direct Funds: \$1,086,000
- 2002-2004: Principal Investigator, National Institute on Drug Abuse Grant Award (2R01 DA03476), “Drug Effects on Behavior: Workplace Implications,” Direct Funds: \$737,478
- 2002-2005: Co-Investigator, National Institute on Drug Abuse Grant Award (5R01 DA010755), “Novel Cocaine Pharmacotherapies: Lab Studies,” Direct Funds: \$1,800,000
- 2002-2005: Principal Investigator, National Institute on Drug Abuse Grant Award (R43), “Marijuana Effects on Human Cognition,” (Alan Gevins, Ph.D. Principal Investigator), Direct Funds: \$32,000

Departmental and University Service

- 2012- present: Institutional Review Board, New York State Psychiatric Institute
- 2005-2010: Task Force on Diversity in Science and Engineering at Columbia University
- 2005-2010: Office of the Vice Provost for Diversity Initiatives, Subcommittee on Search Culture and Hiring Practices
- 2006-present: Director of Undergraduate Studies, Department of Psychology
- 2006-present: Curriculum Committee, Department of Psychology

Teaching Experience and Responsibilities

- 1992-1994: Teaching assistant: Drugs and Behavior, University of Wyoming,
- 1994-1996: Instructor: Drugs and Behavior, University of Wyoming
- 1999-2003 Course Director: Substance Abuse Postdoctoral Fellows Seminar, Department of Psychiatry, Columbia University
- 2003 Instructor: Drugs and Society, Hunter College, The City University of New York
- 2003-present: Instructor: Drugs and Behavior, Department of Psychology, Columbia University
- 2004-present: Instructor: Topics in Neurobiology and Behavior, Department of Psychology, Columbia University
- 2004-present: Faculty Member, Supervised Individual Research (1-4 pts)
- 2004-2005: Team Taught: Drugs and Society, School of Public Health, Columbia University
- 2005-present: Team Taught: Graduate Level Proseminar, Department of Psychology, Columbia University
- 2006: Team Taught: Neuropsychopharmacology (G9625), Department of Pharmacology, Columbia University
- 2008-present: Team Taught: PGYII Substance Abuse, Department of Psychiatry, Columbia University

International/National Professional Activities

International

- 2014-present: Editorial Board, Psychology of Addictive Behaviors
- 2011-present: Board of Directors, College on Problems of Drug Dependence
- 2007-present: Board of Directors, Drug Policy Alliance
- 2010-present: United Nations Reference Group for Intravenous Drug Use and HIV
- 2008: Global Conference On Methamphetamine Executive Program Committee

National Committees

- 2012-present: Department of Health and Human Services, National Institutes of Health, National Advisory Council on Drug Abuse
- 2006-2010: National Institutes of Health, Biobehavioral Regulation, Learning and Ethology Study Section (Acting Chair 2010)
- 2004-2011: National Institute on Drug Abuse, African-American Researchers and Scholars Workgroup
- 2001-2008: College on Problems of Drug Dependence’s Under-represented Populations Committee (Chair 2003-06)

2005-2006: APA Division 28's Liaison to the Science Directorate

Scientific Advisory Board

2012-present: Board of Directors, College on Problems of Drug Dependence

2007-present: Board of Directors, Drug Policy Alliance

2007-2010: National Advisory Council, Students for a Sensible Drug Policy

2005-2010: Morgan State University, National Institute on Drug Abuse Grant Award (R24DA01980), "The Center for the Study and Prevention of Drug Use", (Fernando Wager, Ph.D., Principal Investigator)

2004-2009: California Pacific Medical Center Research Institute, National Institute on Drug Abuse Grant Award (1P50 DA018179), "Methamphetamine Pharmacotherapy Development Center", (John Mendelson, M.D., Principal Investigator)

2004-2009: National Health Promotion Associates, Center for Substance Abuse Prevention Grant Award, "LifeSkills Workplace Prevention Program", (Christopher Williams, Ph.D., Principal Investigator)

2004: Ad hoc Consultant, Medications Development for Cannabis Dependence, National Institute on Drug Abuse

Published Refereed Articles

1993

1. Hakan RL, Hart C, Eyl C (1993) Specific neurophysiological effects of systemic nicotine on neurons in the nucleus accumbens. *Synapse* 15, 191-197.

1995

2. Ksir C, Mellor G, Hart C, Gerhardt GA (1995) Nicotine enhances dopamine clearance in rat nucleus accumbens. *Progress in Neuro-Psychopharmacology and Biological Psychiatry* 19, 151-156.
3. Pacak K, Palkovits M, Kvetnansky R, Matern P, Hart C, Kopin IJ, Goldstein DS (1995) Catecholaminergic inhibition by hypercortisolemia in the paraventricular nucleus of conscious rats. *Endocrinology* 136, 4814-4819.

1996

4. *Hart C, Ksir C (1996) Nicotine effects on dopamine clearance in rat nucleus accumbens. *Journal of Neurochemistry* 66, 216-221.
5. *Hart C, Kisro NA, Robinson SL, Ksir C (1996) Effects of the calcium channel blocker nimodipine on nicotine-induced locomotion in rats. *Psychopharmacology* 128, 359-361.

2000

6. *Hart CL, Jatlow PI, Sevarino KA, McCance-Katz EF (2000) Comparison of intravenous cocaethylene and cocaine in humans. *Psychopharmacology* 149, 153-162.
7. *Hart CL, Haney M, Foltin RW, Fischman MW (2000) Alternative reinforcers differentially modify cocaine self-administration by humans. *Behavioural Pharmacology* 11, 87-91.

2001

8. Haney M, Ward AS, Comer SD, Hart CL, Foltin RW, Fischman MW (2001) Bupropion SR worsens mood during marijuana withdrawal in humans. *Psychopharmacology* 155, 171-179.
9. Comer SD, Hart CL, Ward AS, Haney M, Foltin RW, Fischman MW (2001) Effects of repeated oral methamphetamine administration in humans. *Psychopharmacology* 155, 397-404.
10. *Hart CL, Ward AS, Haney M, Foltin RW, Fischman MW (2001) Methamphetamine self-administration by humans. *Psychopharmacology* 157, 75-81.
11. *Hart CL, van Gorp WG, Haney M, Foltin RW, Fischman MW (2001) Effects of acute smoked marijuana on complex cognitive performance. *Neuropsychopharmacology* 25, 757-765.

2002

12. *Hart CL, Haney M, Ward AS, Fischman MW, Foltin RW (2002) Effects of oral THC maintenance on smoked marijuana self-administration. *Drug and Alcohol Dependence* 67, 301-309.
13. *Hart CL, Haney M, Foltin RW, Fischman MW (2002) Effects of the NMDA antagonist memantine on human methamphetamine discrimination. *Psychopharmacology* 164, 376-384.
14. *Hart CL, Ward AS, Haney M, Comer SD, Foltin RW, Fischman MW (2002) Comparison of smoked marijuana and oral Δ^9 -tetrahydrocannabinol in humans. *Psychopharmacology* 164, 407-415.

2003

*First-authored articles

15. Haney M, Hart CL, Ward AS, Foltin RW (2003) Nefazodone decreases anxiety during marijuana withdrawal in humans. *Psychopharmacology* 165, 157-65.
 16. Foltin RW, Ward AS, Haney M, Hart CL, Collins ED (2003) The effects of escalating doses of smoked cocaine in humans. *Drug and Alcohol Dependence* 70, 149-157.
 17. Foltin RW, Ward AS, Collins ED, Haney M, Hart CL, Fischman MW (2003) The effects of venlafaxine on the subjective, reinforcing and cardiovascular effects of cocaine in opioid-dependent and non-opioid-dependent humans. *Experimental and Clinical Psychopharmacology* 11, 123-130.
 18. *Hart CL, Ward AS, Haney M, Nasser J, Foltin RW (2003) Methamphetamine attenuates disruptions in performance and mood during simulated night shift work. *Psychopharmacology* 169, 42-51.
 19. *Hart CL, Ward AS, Haney M, Foltin RW (2003) Zolpidem-related effects on performance and mood during simulated night-shift work. *Experimental and Clinical Psychopharmacology* 11, 259-268.
 20. Collins ED, Vosburg SK, Hart CL, Haney M, Foltin RW (2003) Amantadine does not modulate the reinforcing, subjective, or cardiovascular effects of cocaine in humans. *Pharmacology, Biochemistry and Behavior* 76, 401-407.
- 2004
21. Haney M, Hart CL, Vosburg SK, Nasser J, Bennett A, Zubaran C, Foltin RW (2004) Marijuana withdrawal in humans: effects of oral THC or divalproex. *Neuropsychopharmacology* 29, 158-170.
 22. *Hart CL, Ward AS, Collins ED, Haney M, Foltin RW (2004) Gabapentin maintenance decreases smoked cocaine-related subjective effects, but not self-administration by humans. *Drug and Alcohol Dependence* 73, 279-287.
- 2005
23. McCance-Katz EF, Hart CL, Boyarsky B, Kosten TR, Jatlow PI (2005) Gender effects following repeated administration of cocaine and alcohol in humans. *Substance Use and Misuse* 40, 511-528.
 24. *Hart CL, Lynch WJ (2005) Developing pharmacotherapies for cannabis and cocaine use disorders. *Current Neuropharmacology* 3, 95-114.
 25. Pace-Schott EF, Stickgold R, Muzur A, Wigren PE, Ward AS, Hart CL, Clarke D, Morgan A, Hobson JA. (2005) Sleep quality deteriorates over a binge-abstinence cycle in chronic smoked cocaine users. *Psychopharmacology* 179, 873-883.
 26. Vosburg SK, Hart CL, Haney M, Foltin RW (2005). An evaluation of the reinforcing effects of memantine in cocaine-dependent humans. *Drug and Alcohol Dependence* 79, 257-260.
 27. *Hart CL, Haney M, Nasser J, Foltin RW (2005) Combined effects of methamphetamine and zolpidem on behavior of shift workers. *Pharmacology, Biochemistry and Behavior* 81, 559-568.
 28. Haney M, Hart C, Collins ED, Foltin RW (2005) Smoked cocaine discrimination in humans: Effects of gabapentin. *Drug and Alcohol Dependence* 80: 53-61.
 29. *Hart CL, Haney M, Vosburg SK, Comer SD, Foltin RW (2005) Reinforcing effects of oral Δ^9 -THC in male marijuana smokers in a laboratory choice procedure. *Psychopharmacology* 181, 237-243.
 30. Pace-Schott EF, Stickgold R, Muzur A, Wigren PE, Ward AS, Hart CL, Walker M, Edgar C, Hobson JA. (2005) Cognitive performance by humans during a smoked cocaine binge-abstinence cycle. *American Journal of Drug and Alcohol Abuse* 31, 571-591.
 31. *Hart CL (2005) Increasing treatment options for cannabis dependence: a review of potential pharmacotherapies. *Drug and Alcohol Dependence* 80, 147-159.
- 2006
32. *Hart CL, Haney M, Vosburg SK, Comer SD, Gunderson EW, Foltin RW (2006) Modafinil attenuates disruptions in cognitive performance during simulated night shift work. *Neuropsychopharmacology* 31, 1526-1536.
 33. Haney M, Hart CL, Foltin RW (2006) Effects of baclofen on cocaine self-administration: Opioid-dependent and non-opioid dependent volunteers. *Neuropsychopharmacology* 31, 1814-1821.
 34. ¹Vadhan NP, Hart CL, Roe B, Colley J, Haney M, Foltin RW (2006) Substance use and psychosocial outcomes following participation in residential laboratory studies of marijuana, methamphetamine and zolpidem. *American Journal of Drug and Alcohol Abuse* 32, 589-97.
- 2007
35. *Hart CL, Haney M, Collins ED, Rubin E, Foltin RW (2007) Smoked cocaine self-administration by humans is not reduced by large gabapentin maintenance doses. *Drug and Alcohol Dependence* 86, 274-277.

36. *Hart CL, Haney M, Vosburg SK, Rubin E, Foltin RW (2007) Gabapentin does not reduce smoked cocaine self-administration: Employment of a novel self-administration procedure. *Behavioural Pharmacology* 18, 71-75.
 37. ¹Vadhan NP, Hart CL, van Gorp WG, Haney M, Gunderson EW, Foltin RW (2007) Acute effects of smoked marijuana on decision-making, as assessed by a modified gambling task, in experienced marijuana users. *Journal of Clinical and Experimental Neuropsychology* 29, 357-364.
 38. Haney M, Gunderson EW, Rabkin J, Hart CL, Vosburg SK, Comer SD, Foltin RW (2007) Dronabinol and marijuana in HIV+ marijuana smokers: Caloric intake, mood and sleep. *Journal of Acquired Immune Deficiency Syndrome* 45, 545-554.
 39. Vadhan NP, Carpenter KL, Copersino ML, Hart CL, Foltin RW, Nunes EV (2007) Attentional bias towards cocaine-related stimuli: relationship to treatment-seeking for cocaine dependence. *American Journal of Drug and Alcohol Abuse* 33, 727-736.
- 2008
40. Pace-Schott EF, Morgan PT, Malison RT, Hart CL, Edgar C, Walker M, Stickgold R. (2008) Cocaine users differ from normals on cognitive tasks which show poorer performance during drug abstinence. *American Journal of Drug and Alcohol Abuse* 34, 109-121.
 41. *Hart CL, Haney M, Vosburg SK, Rubin E, Foltin RW (2008) Smoked cocaine self-administration is decreased by modafinil. *Neuropsychopharmacology* 33, 761-768.
 42. ¹Perez A, Kirkpatrick MG, Gunderson EW, Marrone G, Silver R, Foltin RW, Hart CL (2008) Residual effects of intranasal methamphetamine on sleep, mood, and performance. *Drug and Alcohol Dependence* 94, 258-262.
 43. ¹Kirkpatrick MG, Metcalfe J, Greene MJ, Hart CL (2008) Effects of intranasal methamphetamine on metacognition of agency. *Psychopharmacology* 197, 137-144.
 44. Haney M, Hart CL, Vosburg SK, Comer SD, Reed S, Foltin RW (2008) Effects of THC and Lofexidine in a Human Laboratory Model of Marijuana Withdrawal and Relapse. *Psychopharmacology* 197, 157-168.
 45. *Hart CL, Gunderson EW, Perez A, Kirkpatrick MG, Thurmond A, Comer SD, Foltin RW (2008) Acute physiological and behavioral effects of intranasal methamphetamine in humans. *Neuropsychopharmacology* 33, 1847-1855.
 46. ¹Perez GA, Haney M, Foltin RW, Hart CL (2008) Modafinil decreases food intake in humans subjected to simulated shift work. *Pharmacology, Biochemistry and Behavior* 90, 717-722.
 47. Gray KM, Hart CL, Christie DK, Upadhyaya HP (2008) Tolerability and effects of oral Δ^9 -tetrahydrocannabinol in older adolescents with marijuana use disorders. *Pharmacology, Biochemistry and Behavior* 91, 67-70.
- 2009
48. ¹Kirkpatrick MG, Haney M, Vosburg SK, Comer SD, Foltin RW, Hart CL (2009) Methamphetamine self-administration by humans subjected to abrupt shift and sleep schedule changes. *Psychopharmacology* 203, 771-80.
 49. Vadhan NP, Hart CL, Haney M, van Gorp WG, Foltin RW (2009) Decision-making in long-term cocaine users: Effects of a cash monetary contingency on Gambling task performance. *Drug and Alcohol Dependence* 102, 95-101.
 50. Mariani J, Haney M, Hart CL, Vosburg SK, Levin FR (2009) Effects of Research Setting on Observed Depressive Symptoms in Marijuana Users. *Journal of Substance Abuse Treatment* 37, 431-43.
- 2010
51. Kober H, Kross EF, Mischel W, Hart CL, Ochsner KN (2010) Regulation of craving by cognitive strategies in cigarette smokers. *Drug and Alcohol Dependence* 106, 52-5.

¹ Papers published with trainees (undergraduates to postdoctoral fellows) in my laboratory

52. ¹Marrone GF, Pardo J, Krauss RM, Hart CL (2010) Amphetamine analogs methamphetamine and 3,4-methylenedioxymethamphetamine (MDMA) differentially affect speech. *Psychopharmacology* 208, 169-77.
 53. Vosburg SK, Hart CL, Haney M, Rubin E and Foltin RW (2010) Modafinil does not serve as a reinforcer in cocaine abusers. *Drug and Alcohol Dependence* 106, 233-36.
 54. Kopetz CE, Reynolds EK, Hart CL, Kruglanski AW, Lejuez CW (2010) Social context and perceived effects of drugs on sexual behavior among individuals who use both heroin and cocaine. *Experimental and Clinical Psychopharmacology* 18, 214-20.
 55. Haney M, Hart CL, Vosburg SK, Comer SD, Reed SC, Cooper ZD, Foltin RW (2010) Effects of baclofen and mirtazapine on a laboratory model of marijuana withdrawal and relapse. *Psychopharmacology* 211, 233-44.
 56. *Hart CL, Ilan AB, Gevins A, Gunderson EW, Role K, Colley J, Foltin RW (2010) Neurophysiological and cognitive effects of smoked marijuana in frequent users. *Pharmacology, Biochemistry and Behavior* 96, 333-41.
 57. ¹Kirkpatrick MG, Haney M, Vosburg SK, Comer SD, Foltin RW, Hart CL (2010) Zolpidem does not serve as reinforcer in humans subjected to simulated shift work. *Drug and Alcohol Dependence* 112, 168-71.
 58. Kober H, Mende-Siedlecki P, Kross EF, Weber J, Mischel W, Hart CL, Ochsner KN (2010) A prefrontal-striatal pathway underlies the cognitive regulation of craving. *Proceedings of the National Academy of Science* 107, 14811-16.
 59. Colfax G, Santos GM, Chu P, Vittinghoff E, Pluddemann A, Kumar S, Hart C (2010) Amphetamine-group substances and HIV. *The Lancet* 376, 458-74.
 60. Bedi G, Foltin RW, Gunderson EW, Rabkin J, Hart CL, Comer SD, Vosburg SK, Haney M (2010) Efficacy and tolerability of high-dose dronabinol maintenance in HIV-positive marijuana smokers: a controlled laboratory study. *Psychopharmacology* 212, 675-86.
- 2012
61. ¹Kirkpatrick MG, Gunderson EW, Perez AY, Haney M, Foltin RW, Hart CL (2012) A direct comparison of the behavioral and physiological effects of methamphetamine and 3,4-methylenedioxymethamphetamine (MDMA) in humans. *Psychopharmacology* 219, 109-22.
 62. ¹Kirkpatrick MG, Gunderson EW, Levin FR, Foltin RW, Hart CL (2012) Acute and residual interactive effects of repeated administrations of oral methamphetamine and alcohol in humans. *Psychopharmacology* 219, 191-204.
 63. Hart CL, Marvin CB, Silver R, Smith EE (2012) Is cognitive functioning impaired in methamphetamine users? A critical review. *Neuropsychopharmacology* 37, 586-608.
 64. ¹Kirkpatrick MG, Gunderson EW, Johanson CE, Levin FR, Foltin RW, Hart CL (2012) Comparison of intranasal methamphetamine and *d*-amphetamine self-administration by humans. *Addiction* 107, 783-91.
 65. Urban NB, Girgis RR, Talbot PS, Kegeles LS, Xu X, Frankle WG, Hart CL, Slifstein M, Abi-Dargham A, Laruelle M (2012) Sustained recreational use of ecstasy Is associated with altered pre and postsynaptic markers of serotonin transmission in neocortical areas: A PET study with [¹¹C]DASB and [¹¹C]MDL 100907. *Neuropsychopharmacology* 37, 1465-73.
 66. Gunderson EW, Haughey HM, Ait-Daoud N, Joshi AS, Hart CL (2012) "Spice" and "K2" herbal highs: A case series and systematic review of the clinical effects and biopsychosocial implications of synthetic cannabinoid use in humans. *The American Journal on Addictions* 21, 320-26.
 67. Rowell-Cunsolo TL, Wu E, Hart CL, Haile R, El-Bassel N (2012) Predictors of drug use in prison among incarcerated Black men. *The American Journal of Drug and Alcohol Abuse* 38, 593-97.

68. Cooper ZD, Foltin RW, Hart CL, Vosburg SK, Comer SD, and Haney M (2013) A human laboratory study investigating the effects of quetiapine on marijuana withdrawal and relapse in daily marijuana smokers. *Addiction Biology* 18, 993-1002.
69. Keith DR, Hart CL, Robotham M, Tariq M, LeSauter J, Silver R (2013) Time of day influence the voluntary intake and behavioral response to methamphetamine and food reward. *Pharmacology, Biochemistry and Behavior* 110, 117-26.
70. Dakwar E, Levin F, Foltin RW, Nunes EV, Hart CL. (2013) The effects of sub-anesthetic ketamine infusions on motivation to quit and cue-induced craving in cocaine dependent research volunteers. *Biological Psychiatry*
71. Dakwar E, Alerella C, Hart CL, Levin FR, Mathew SJ, Nunes EV (2014) Therapeutic infusions of ketamine: do the psychoactive effects matter? *Drug and Alcohol Dependence* 136, 153-57.

2014

72. Gunderson EW, Haughey HM, Ait-Daoud N, Joshi AS, Hart CL (2014) A survey of synthetic cannabinoid consumption by current cannabis users. *Substance Abuse* 35, 184-89.

In press

73. Goodwin RD, Grinberg A, Shapiro J, Keith D, McNeil MP, Taha F, Jiang B, Hart CL (in press) Hookah use among college students: Prevalence, drug use, and mental health. *Drug and Alcohol Dependence*
74. Keith DR, Gunderson EW, Haney M, Foltin RW, Hart CL (in press) Smoked marijuana attenuates performance disruptions during simulated night shift work. *Drug and Alcohol Dependence*

Book Chapters

2001

1. Hart C, McCance-Katz EF, Kosten TR (2001) Pharmacotherapies used in common substance use disorders. In: FM Tims, CG Leukefeld, JJ Platt. *Relapse and Recovery in Addictions*. Yale University Press: New Haven, 303-333.

2009

2. ¹Kober H, Turza AC, Hart CL (2009) Risk factors for substance use, abuse, and dependence: Learning. In: HR Kranzler and P Korsmeyer. *Encyclopedia of Drugs, Alcohol, and Addictive Behavior*, 3rd edition. Macmillan Reference USA

2010

3. Hart CL, Shytle RD (2010) Potential pharmacotherapies for cannabis dependence. In: B Johnson. *Addiction Medicine: Science and Practice*. Springer: New York
4. ¹Kirkpatrick MG, Hart CL (2010) The Subjective Effects of Cannabis. In: J Holland. *The Pot Book: A Complete Guide to Cannabis*. Park Street Press: Rochester, VT.
5. ¹Marvin CB, Hart CL (2010) Cannabis and Cognition. In: J Holland. *The Pot Book: A Complete Guide to Cannabis*. Park Street Press: Rochester, VT.

Books

2013

1. Hart CL, Ksir C (2005-2013) *Drugs, Society, and Human Behavior*, 11th-15th Edition. McGraw-Hill: New York (**Textbook**)
2. Hart CL (2013) *High Price: A neuroscientist's journey of self-discovery that challenges everything you know about drugs and society*. Harper-Collins: New York

Case Reports/Letters/Commentaries/OpEd's

2002

1. ¹Ginzburg V, Hart CL (2002) Acupuncture for the treatment of cocaine addiction. *Journal of the American Medical Association* 287, 1800.

- 2005 2. ¹Gunderson EW, Vosburg SK, Hart CL (2002) Does marijuana use cause long-term cognitive deficits? *Journal of the American Medical Association* 287, 2652-2654.
3. ¹Mariani JJ, Hart CL (2005) Psychosis associated with modafinil and shift work. *The American Journal of Psychiatry* 162, 1983.
- 2006 4. ¹Accordino M, Hart CL (2006) Neuropsychological deficits in long-term frequent cannabis users. *Neurology* 67, 1902.
5. ¹Nordstrom BR, Hart CL (2006) Assessing cognitive functioning in cannabis users: cannabis use history an important consideration. *Neuropsychopharmacology* 31, 2798-2799.
- 2007 6. ¹Nordstrom BR, Hart CL (2007) Colorblindness: A missed opportunity to address the negative impact of being black in America. *The American Journal on Addictions* 16, 138-139.
- 2008 7. Mendelson J, Rawson R, Newton T, Galloway G, de Wit H, Dewey SL, Hart CL, Epstein DH (2008) Treatment of methamphetamine dependence. *Mayo Clinic Proceedings* 83, 369-370.
8. Hart CL, Krauss RM (2008) Human drug addiction is more than faulty decision-making. *Behavioral and Brain Sciences* (Invited Commentary) 31, 448-449.
- 2009 9. Saldaña C, Hart CL (2009) Diacetylmorphine versus methadone for opioid addiction. *New England Journal of Medicine* 361, 2193-2194.
- 2010 10. ¹Hart C, Powell AC (2010) Determining cognitive deterioration requires multiple tests administered on more than one occasion. *Psychiatry Clinical Neuroscience* 64, 667.
11. Member of Writing Committee (2010) The Vienna declaration. *Canadian Journal of Public Health* 101, 271.
- 2011 12. ¹Fan L, Hart CL (2011) A call for more care when investigating the cannabis-psychosis link. *Psychiatry Research* 191, 84.
- 2013 13. Hart CL (2013) Reefer Madness, an Unfortunate Redux. *New York Times* (Op-Ed) July 11, 2013
14. Hart CL (2013) Pot Reform's Race Problem. *The Nation* (Op-Ed) November 18, 2013
- 2014 15. Hart CL (2013) How the Myth of the 'Negro Cocaine Fiend' Helped Shape American Drug Policy. *The Nation* (Op-Ed) January 29, 2014

Conferences Organized

- 2007 1. Drug Abuse and Cognition Conference: Neuropsychopharmacological analysis as a tool to understand human cognition. Columbia University

Recent Selected Invited Talks

- 2011 1. American Museum of Natural History, New York, NY
 2. Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania
 3. Midwestern Psychological Association Annual Meeting, Chicago, IL
 4. European HIV Conference, Tallinn, Estonia
 - 2010 5. University of Malaya, Kuala Lumpur, Malaysia
 6. Grand Rounds, Department of Psychiatry, Medical University of South Carolina, Charleston, SC
 - 2009 7. Grand Rounds, Department of Psychiatry, University of California – San Francisco, CA
 8. American College of Neuropsychopharmacology Annual Meeting, Hollywood, FL
 - 2008 9. Global Conference on Methamphetamine, Prague, Czech Republic
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10. Treatment Research Center, University of Pennsylvania, Philadelphia, PA
11. Sackler Institute for Developmental Psychobiology, Weill Medical College of Cornell University, New York, NY
12. Methamphetamine Form on Capital Hill, Washington, DC
13. A Mini Medical School on Addiction, Morehouse School of Medicine, Atlanta, GA

2007

14. Behavioral Pharmacology Research Seminar Series, Johns Hopkins University, Baltimore, MD
15. Division on Substance Abuse Seminar Series, Yale University, New Haven, CT

Ad hoc Journal Referee

American Journal of Drug and Alcohol Abuse
 American Journal of Psychiatry
 American Journal of Psychology
 Archives of General Psychiatry
 Behavioural Pharmacology
 Biological Psychiatry
 BioMed Central: Clinical Pharmacology
 Canadian Medical Association Journal
 Drug and Alcohol Dependence
 Experimental and Clinical Psychopharmacology
 International Journal of Drug Policy
 Journal of Clinical Pharmacology
 Journal of Clinical Psychiatry
 Journal of International Neuropsychological Society
 Journal of Neurochemistry
 Journal of Pharmacology And Experimental Therapeutics
 Journal of Psychopharmacology
 Neuroimage
 Neuropsychopharmacology
 Pharmacology, Biochemistry and Behavior
 Psychology of Addictive Behaviors
 Psychopharmacology
 Schizophrenia Research

Ad hoc Grant Referee

National Institute on Drug Abuse Director's Avant-Garde Grant Review Committee
 National Institute on Drug Abuse, Biobehavioral Regulation, Learning and Ethology Study Section
 National Institute on Drug Abuse, Extramural Program
 National Institute on Drug Abuse, Behavioral Science Track Award for Rapid Transition (B-START) Program
 National Institute on Drug Abuse, Intramural Research Program (Served as external reviewer for submitted protocols)
 The Wellcome Trust, United Kingdom

Professional Organizations and Societies

1999-present: Behavioural Pharmacology Society (Member)
 2000-present: American Psychological Association (Member to Fellow)
 Division 28, Psychopharmacology and Substance Abuse
 2000-present: College on the Problem of Drug Dependence (CPDD; Associate to Regular Member)
 2001-present: The International Study Group Investigating Drugs as Reinforcers (Member)
 2003-present: Sleep Research Society (Member)
 2006-2013: American College of Neuropsychopharmacology (Associate Member)
 2007-2013: Association for Psychological Science (Member)